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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/748,302
Filing Date: December 31, 2003
Appellant(s): DRURY, THOMAS J.

John S. Hale
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed December 22, 2006 appealing from the Office action mailed February 23, 2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. However, the evidential references are missing from the heading of the grounds of rejection. The changes are as follows (see Final Office action mailed February 23, 2006):

Claims 1-22 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Bahten (US 6076662), and evidenced by Cercone et al. (US 6027573) and Rosenblatt (US 4098728).

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

US 6,076,662	Bahten	6-2000
US 6,027,573	Cercone et al.	2-2000
US 4,098,728	Rosenblatt	7-1978

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1-22 are rejected under 35 U.S.C. 102(a) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Bahten (US 6076662), and evidenced by Cercone et al. (US 6027573) and Rosenblatt (US 4098728).

Bahten's invention relates to a sponge or porous polymeric ultra clean "scrubbing" brush (cleaning device) for manufacturing of integrated circuits (column 1, lines 23-27). The cleaning device comprises a polyvinyl acetal (PVA) porous elastic material having an average pore size 10 to 200 microns (column 4, lines 11-19), and may be shaped as a roller having a smooth surface, or may be shaped as a pad or a disk (column 3, lines 44-53). The roller may have an outer diameter of about 60 mm and an inner diameter of about 32 mm (column 11, lines 42-47).

For claims 1, 3-6, 8 and 22, Bahten is silent about the uniformity and size distribution of the pores. However, since Bahten teaches the same subject matter for the same use (an ultra clean "scrubbing" brush of porous PVA for manufacturing of integrated circuits), a workable uniformity and size distribution of the pores are either anticipated by Bahten, or an obvious routine optimization to one skilled in the art of PVA sponge for a cleaning device, motivated by the desire to obtain a sponge suitable for use as a cleaning device in manufacturing of integrated

circuits, as evidenced by Cercone (col. 2, line 41 to col. 3, line 14) and Rosenblatt (abstract; col. 4, lines 7-9) references. Specifically, Cercone relates to a cleaning device comprising a PVA sponge for cleaning critical materials such as semiconductor wagers, the sponge is made by the process taught by Rosenblatt reference, and Rosenblatt discloses that the sponge has a controlled uniform pore size and uniform pore distribution, i.e., selecting a sponge having a uniform pore size and uniform pore distribution is known art. Finally, it should be noted that since claim 1 of the present invention defines the pore size and distribution as "a uniform pore size ... over 90% of the pores ranges from about 7 microns to about 40 microns in size", the term "uniform pore size" in claim 1 appears to have been re-defined as encompassing a wide range of pore sizes, contrary to the common interpretation of the term that "uniform" means a narrow range of pore sizes.

For claim 2, Bahten shows one of the embodiments of the brush rollers having a smooth outer surface in Fig. 1A (col. 3, lines 46-49).

For claims 7 and 9, Bahten is silent about the performance characteristics "bubble point pressure" or "mean flow pore pressure" of the porous polyvinyl acetal material. However since Bahten teaches the same subject matter for the same use, a workable "bubble point pressure" or "mean flow pore pressure" is deemed to be either anticipated by Bahten, or obvious routine optimizations to one skilled in the art of cleaning sponge, motivated by the desire to obtain a cleaning device having performance characteristics required by its utility.

For claims 10-18, since they claim essentially the same scope of limitations as claims 1-9, they are also rejected for the reasons as set forth above.

For claims 19 and 20, similarly, since Bahten teaches the same subject matter for the same use as the instant invention, a workable performance characteristics "cleaning solvent flow rate through the roller" and "dry flow rate" are also deemed to be either anticipated by Bahten, or obviously provided by practicing the invention of the prior art to meet its utility requirements.

For claim 21, Bahten is silent about the residual formaldehyde content in the ultra clean "scrubbing" brush. However, since Bahten teaches that the devices are subjected to washer/extraction step to remove impurities, and the devices are substantially free from impurities (col. 7, line 65 to col. 8, line 4), a workable low level of residual formaldehyde is deemed to be either anticipated by Bahten, or obviously provided by practicing the invention of the prior art to meet its utility requirements.

(10) Response to Argument

Pointing to the Declaration by Thomas J. Drury, appellant argues at pages 5-6 that Exhibit A shows three surprising results over the roller products currently being used in marketplace. However, Exhibit A appears to be inadequate as a credible evidence to show the performance differences between the brushes of Bahten and instant invention, because while the comparison chart in the last page of Exhibit A summarizes the performance comparison of 4 brushes, among which the brushes of instant invention are identified as BPTOne (3920-00307) 212XP and BPTOne 186 (see Declaration, page 1), the other two brushes are merely identified as Brush X and Brush Y. Throughout the Declaration the examiner can only find one statement at page 2 indicating that "Rippey brushes are believed to be those disclosed by Bahten Patent No. 6,076,662 (assigned to Rippey Corporation)", which is insufficient to positively identify that the Rippey brushes in Exhibit A must be the brushes disclosed by Bahten reference, nor is there any

other relevant data relating to the sponge structural characteristics, such as the uniformity of pore sizes and their distribution, being shown for these brushes for a fair comparison.

Appellant argues at page 7 that Bahten uses starch as the pore former, whereas Rosenblatt and Cercone use air as pore former, therefore these references are not combinable. However, nowhere has Bahten indicated that his PVA sponge must be made with a starch pore former, nor has Bahten limited the pore former of his PVA sponge to be starch. Appellant appears to analyze the disclosure of Bahten in vacuum without a support, and is therefore unpersuasive.

Appellant argues at page 7 that Rippey would have chosen to use an inferior product, and the examiner has engaged in hindsight application to apply the cited prior art reference of Bahten '662 against the present invention. Appellant appears to argue that since Rippey makes a cleaning device with Bahten's sponge, and Rippey is known to be an inferior product as shown by the Declaration, the examiner's proposed improvement is a hindsight reasoning over the instant invention. However, since nowhere have Rippey brushes been relied upon in the grounds of rejection, nor is there any credible evidence that Rippey brush must be the same as Bahten's cleaning device, appellant's argument appears to be misplaced.

Appellant argues at page 8 that Bahten '662 generally states that pore size ranges from 10 microns to about 200 microns, and also notes that where the average pore size is less than 10 microns the material may have poor elasticity. However, despite the cautionary statement by Bahten, the range of pore sizes disclosed by Bahten reads on the instant invention as claimed.

Appellant argues at page 8 that Bahten does not teach the product of a shaped body. However, Bahten clearly teaches that the sponge may be shaped as a roller having a smooth surface, or may be shaped as a pad or a disk.

Appellant argues at page 8 that Bahten does not teach the uniformity and size distribution of the pores and does not teach a uniform pore size within a narrow range as the present invention. However, since Bahten teaches the same subject matter for the same use (an ultra clean "scrubbing" brush of porous PVA for a cleaning device used in manufacturing of integrated circuits), a workable pore size uniformity and distribution are deemed to be either anticipated by Bahten, or an obvious routine optimization to one skilled in the art of PVA sponge for a cleaning device, motivated by the desire to obtain a sponge suitable for its end use, as evidenced by Cercone and Rosenblatt references that known cleaning device for semiconductor wafer uses a sponge having controlled uniform pore size and distribution. Further, appellant's argument that a narrow pore size range is required appears incommensurate with the definition of pore size uniformity recited claim 1 (a uniform pore size ... over 90% of the pores ranges from about 7 microns to about 40 microns in size), because the term "uniform pore size" of the instant invention appears to have been re-defined to encompass a wide range of pore sizes, contrary to the common interpretation of the term as being over a narrow range of pore sizes.

Pointing to Exhibit B, appellant argues at page 8 that the brushes of the present invention clean twice as well as Rippey brushes and their equivalent. However, since Rippey brushes are not relied upon as prior art references and there is no credible evidence that Rippey brushes must be the same as the Bahten brushes, appellant's argument appears to be misplaced.

Appellant argues at pages 9-10 that Bahten '662 uses starch and 12 complex cleaning steps are required prior to be used for cleaning silicone chips. However, nowhere has Bahten disclosed that starch is used in the process of making the sponge, nor has Bahten limited the pore former of his PVA sponge to be starch. As to the 12 steps, they are not steps of sponge making,

rather they are steps for packaging a cleaning device, so as to maintain its cleanliness prior to use, it is unseen how these packaging steps are relevant to the claimed invention.

Appellant argues at page 10 that Bahten '662 does not teach various performance characteristics of mean flow pore pressure, cleaning solvent flow rate, or dry flow rate, and argues that it is not obvious to reduce formaldehyde to the levels of the present invention. However, since Bahten teaches the same subject matter for the same use as the instant invention, the abovementioned cleaning result-effective performance characteristics are deemed to be either anticipated by Bahten, or obviously provided by practicing the invention of the prior art to meet utility requirements. As to the residual formaldehyde content in the ultra clean "scrubbing" brush, since Bahten teaches that the devices are subjected to washer/extraction step to remove impurities, and the devices are substantially free from impurities, a workable low level of residual formaldehyde is also deemed to be either anticipated by Bahten, or obviously provided by practicing the invention of the prior art to meet its utility requirements.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Victor S. Chang

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